

**REMARKS**

Claims 1 and 18 stand rejected under 35 USC § 102 (e) as being anticipated by Stouffer et al. (USPN 5540868). It is stated that Stouffer et al teach the claimed process at column 8, line 4 and at column 13, lines 36-column 14, line 12.

Stouffer et al is directed to a process for crystallizing very low molecular weight polyester particles by thermally shocking the polymer molten droplets or solid particles. There are two different processes described by Stouffer et al. depending upon whether the polymer to be crystallized is in a molten droplet form or in the form of a solid particle. With respect to solid particles, Stouffer et al. teach introducing essentially amorphous solid polyester low molecular oligomers into a thermal shock zone where the pellets are contacted with a high temperature gas at a temperature of at least  $T_{min}$  for at least about 0.5 seconds where  $T_{min}$  is at least the melting point of the solid oligomer. See C13: 1-12. Stouffer et al. teach that the solid pellets could be "initially at a temperature below 90° C, preferably at least ambient, and most preferable below 70° C," and then placed in an oven for at least 3 seconds to thermally shock the pellets at a temperature of at least 250° C, or between 300° C and 800° C. See C. 13: 38-46.

With respect to the time and temperature of heating the pellets, Stouffer et al. teach that the crystallization of these low molecular weight solids is conducted at a temperature between 270° C and 2,000° C, for a time ranging between 0.5 seconds and 2 minutes. See C 13, lines 25-30. Stouffer et al. also note that this upper time limit is not only especially preferred, but may even be necessary when employing a hot gas to avoid melting the pellet during long exposures. See C 13: 34-36.

Stouffer et al. do not anticipate claims 1 and 18 because Stouffer et al. do not disclose the steps of cooling the pellets or conveying the pellets. Claim 1 calls for a process in which, upon solidifying the molten polymer to form pellets, the pellets are cooled, but only cooled to a temperature between 50° C and the  $T_g$  of the polymer. This step is not disclosed by Stouffer et al. While Stouffer et al. teach that the pellet temperature can initially be between ambient and 90° C, Stouffer et al. is silent on the condition or temperature of these pellets after pelletization. Stouffer et al. does not contain any teaching which deviates or suggests anything other than the conventional practice of forming pellets, drying pellets, and then storing the pellets in a silo prior to their introduction into a crystallizer. While Stouffer et al. state that the temperature of

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the pellets can be between ambient and 90 before their introduction into the oven, it is unknown from the teachings of Stouffer et al. as to whether this temperature is held or maintained between pelletization and their introduction into the oven, or whether they are allowed to cool followed by heating to elevate their temperature between ambient and 90° C prior to introduction in the oven.

The working examples provide a measure of guidance on this issue. Stouffer et al. teach, through example 1, the conventional known practices of allowing the pellet temperatures to fall to ambient temperatures, and do not at all suggest a process for decreased energy consumption in polyester production processes. Specifically, example 1 from Stouffer et al. describe a process in which the polyester polymer melt is extruded into droplets, the droplets fall into *chilled* water to form particles, and then are exposed to a thermal shock treatment. The process of the pelletizing and dropping the droplets or strands into a water bath or chilled water is in line with a conventional process. By contrast, Applicants claims call for, solidification and cooling the pellets only to a temperature of no less than about 50° C and up to about the  $T_g$  of the polymer to form warm pellets.

Since Stouffer et al. do not describe a step of cooling the pellets to a temperature of about 50° C to the  $T_g$  of the polymer upon solidification and maintaining that temperature up to their introduction into the crystallizer, it is submitted that Stouffer et al. do not anticipate claims 1 and 18.

Claim 1 also calls for a step of conveying the warm pellets to a crystallizer. This process feature is not described by Stouffer et al. Stouffer et al. is silent on the method of delivering polyester polymer pellets from the step of solidification to the crystallizer. Further, Stouffer et al. do not teach the process for conveying "warm" pellets from the step of solidification to the crystallizer. For this reason, it is also submitted that Stouffer et al. did not anticipate claims 1 and 18. Accordingly, Applicants respectfully request withdrawal of the rejection under 35 USC § 102 (e) over Stouffer et al. as anticipating claims 1 and 18.

Claims 2-10 and 17 also stand rejected under 35 USC § 103 (a) as obvious over Stouffer et al. For the reasons which follow, Applicants submit that Stouffer et al. do not suggest any of the features of claims 2-10 and 17. With respect to claim 2, Stouffer et al. do not suggest introducing warm pellets from a step of pelletizing into a stream of

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water at a temperature between 50° C and 90° C. As noted above, Stouffer et al. is silent on the temperature at which the pellets are maintained between solidification and crystallization in the general teachings, and moreover, Stouffer et al. directs those of ordinary skill away from the claimed invention because the particles in Example 1 are dropped into chilled water. Applicants take note of the statement provided in the rejection that "the claimed temperature would have been obviously determined through routine experimentation." However, the question is not whether it would have been easy or difficult through routine experimentation to obtain a claimed temperature, but rather whether Stouffer et al. provide the motivation to *not* allow the temperature of the pellets upon solidification to drop below 50° C. Applicants submit that Stouffer et al., to the extent that it provides any motivation regarding the issue, would suggest continuing to practice the conventional process, that is, allowing the pellets to chill to a temperature near ambient or even below ambient, and in any event, do not suggest that the temperature upon solidification is a variable which should be manipulated.

With respect to claim 3, while the removal of water from a polyester pellet prior to crystallization is known, it is not known and would not have been obvious to those of ordinary skill to maintain the temperature of the pellets between 50° C and 90° C even during or after the step of removing the water from the pellets. This combination is not suggested by Stouffer et al.

With respect to claim 9, there is no suggestion given by Stouffer et al. that the water used in the stream is obtained from the water removal step. Moreover, the claimed process is not directed to the molding art, but rather to the production processes for making polyester polymer pellets.

With respect to claim 10, Stouffer et al. do not disclose or suggest a process for crystallizing polyester polymer pellets in which no heat energy is added to a dryer. Not only is Stouffer et al. silent with respect to the presence of a dryer, it cannot possibly suggest the use of a dryer in which no heat energy is added. One of the advantages in the claim process is that by cooling the pellets only to a temperature between 50° C and a  $T_g$  of the polymer, the heat energy within the polyester polymer pellets aids in drying the pellets once the bulk of the water is removed. There is no suggestion in Stouffer et al. that, in the step of drying polyester polymer pellets, no heat energy should be added to the dryer.

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For these reasons, Applicants respectfully request withdrawal of the rejection of claims 2-10 and 17 under 35 USC § 103 (a) over Stouffer et al.

Applicants note that claims 11-16 have not been rejected, and they have not been objected to as being dependent upon a rejected claim. Their status is unclear to Applicants at the moment. However, since these claims have not been rejected, Applicants have taken the precaution of adding a set of claims as embodied in claims 37 through 48 incorporating the limitation of claim 11 with respect to introducing the warm pellets into a gaseous stream.

Applicants have also added a set of claims, claims 20 through 36, further directed to a step of crystallizing the solid pellets at a temperature between 160° C to 190° C, or over a time period between 30 – 90 minutes, or both. These features are neither disclosed nor suggested by Stouffer et al. In fact, Stouffer et al. teach against crystallizing at a temperature within this claimed range or for a time within the claimed time period. With respect to the thermal shock treatment delivered to solid polyester polymer particles, Stouffer et al. teach that the exposure time period should range between .5 seconds and 10 minutes and should not exceed 2 minutes. Moreover, Stouffer et al. teach crystallizing (thermally shocking) the polyester polymer particles at a temperature between 270° C and 2,000° C. Thus, Applicants submit that claims 20 to 36 are also patentable over the teachings of Stouffer et al.

The Examiner is invited to contact the undersigned with any further questions related to the prosecution of this application.

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Respectfully submitted,

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April 18, 2006  
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CERTIFICATE OF MAILING UNDER 37 CFR 1.8(a)

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